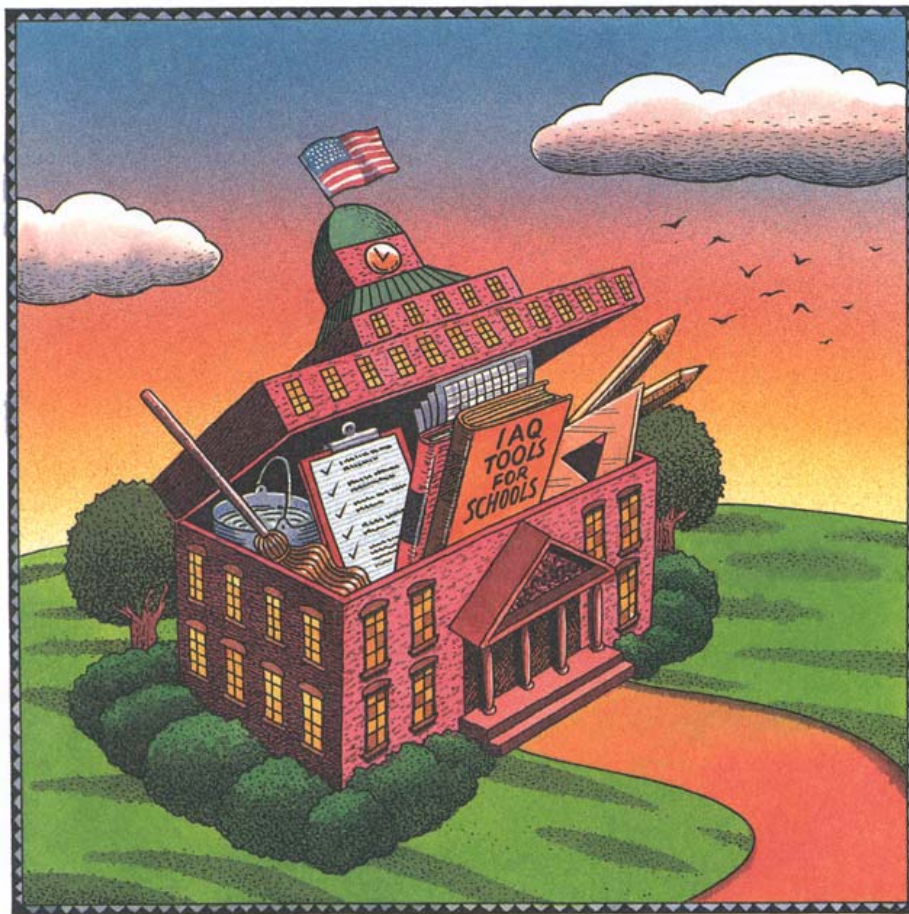


Indoor Air Quality



Tools For Schools

Indoor Air Quality and *IAQ TFS* Basics: A 50-Minute Tour

**4th Annual *IAQ Tools*
for Schools Symposium**

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A New Issue ... Right?

"In the construction of buildings, whether for public purposes or as dwellings, care should be taken to provide good ventilation and plenty of sunlight. ... school rooms are often faulty in this respect. Neglect of proper ventilation is responsible for much of the drowsiness and dullness that ... make the teacher's work toilsome and ineffective."

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Health Reformer, 1871

Agenda

- *IAQ Facts*
- *Causes and Root Causes of IAQ Problems*
- *The IAQ Tools for Schools Kit*
- *The IAQ Tools for Schools Program*

Why is IAQ important?

Americans spend about 90% of their day indoors - in classrooms, in offices, at home.

Pollution indoors is two to five times - and occasionally more than 100 times - higher than out door levels.

Fast Facts on Indoor Air Quality in Schools

- Three-quarters of schools reported needing to spend money on repairs, renovations, and modernizations to put the school's onsite buildings in overall good condition.

Source: Department of Education National Center for Education Statistics. "Condition of America's Public School Facilities." 1999 Report.

- The average age of public school buildings is 42 years old. School buildings begin rapid deterioration after 40 years if not properly maintained.

- *Source: U.S. DOE 1998 Report.*

Why is IAQ important? (continued)

Asthma!

- *14,000,000 missed school days each year*
- *1 in 13 kids has it*
- *Asthma triggers found in schools:*
 - *mold spores*
 - *animal dander*
 - *cockroach parts/feces*
 - *dust mites*

Why is IAQ important? (continued)

Bronchial irritants:

-chemicals, cleaners, cigarette smoke, dust, fragrances, fumes, food odors

Comfort factors:

- Humidity (30-60% rel. hum.)

Temperature

"Stiffness"

Possible health effects

- *Increased spread of infectious disease*
- *Coughing, bronchitis*
- *Asthma episodes*
- *Headaches*
- *Allergic reactions*
- *Carbon monoxide poisoning*
- *Legionnaires' disease*
- *Lung cancer (from radon gas)*

Major causes of poor IAQ

- *Pollution sources*
- *Improperly operated and maintained HVAC*
- *Building occupants and their activities*

More causes of poor IAQ

- *Reduced ventilation*
- *Building materials and furnishings*
- *Water intrusion -- mold growth*
- *Deferred maintenance*
- *Pests/vermin*
- *Pesticides - inside or outside*
- *Cleaners*
- *Dirty carpets*
- *Personal care products*

But these aren't Root Causes !

So ... what are "Root" Causes?

- 1. Lack of awareness of how everyone's typical activities affect IAQ.*

"Root" Causes (continued)

- 2. Lack of clear communication between school and district staff on issues affecting IAQ.*

"Root" Causes (continued)

- 3. Lack of awareness by all of a basic knowledge of IAQ in general and the workings of the school, including the mechanics of the school, e.g. Ventilation.*

Root Causes Recap

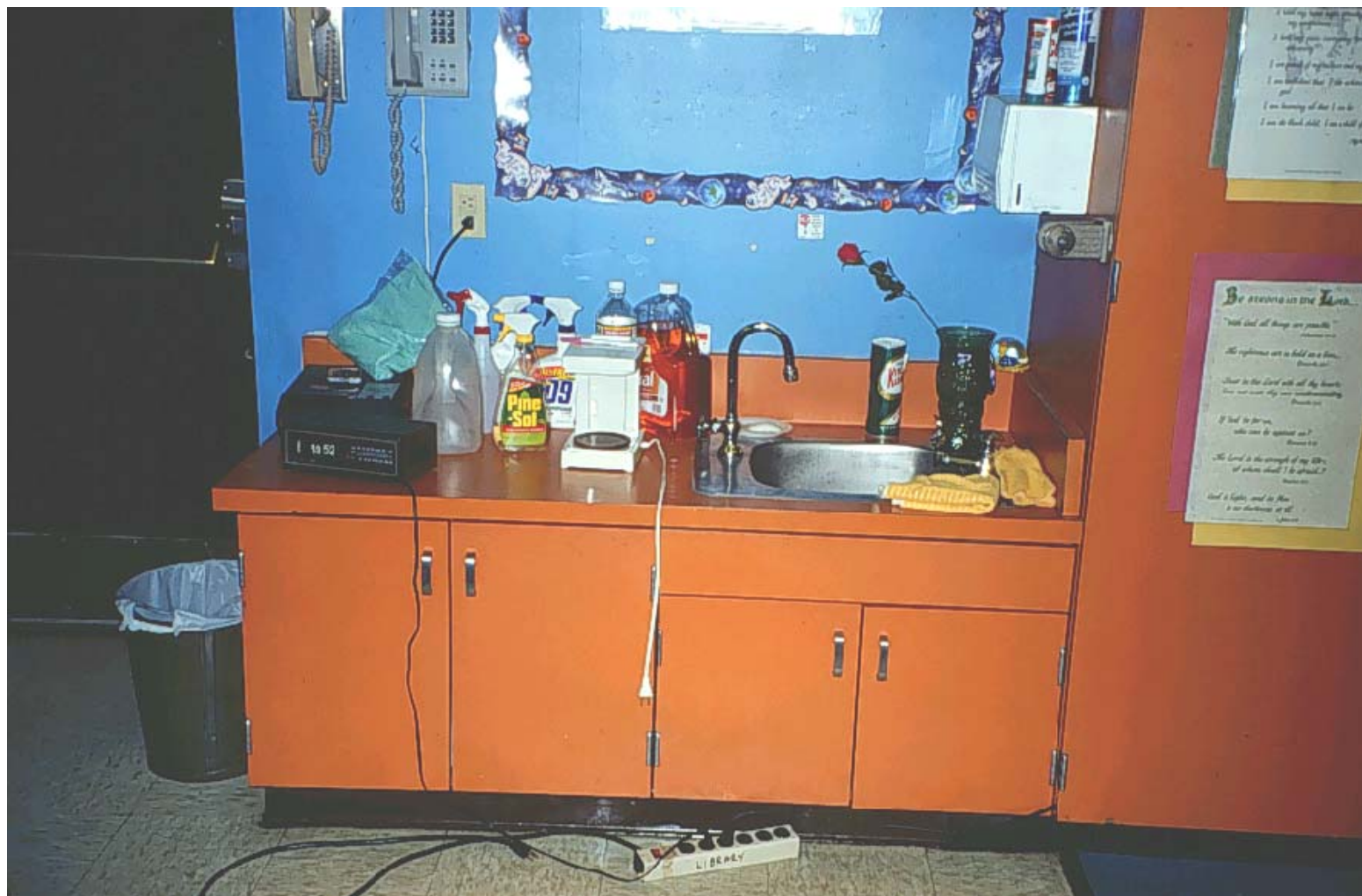
- *Typical activities*
- *Communication*
- *Basic knowledge*



Identify these
in the photos.

Health Implication? Root Cause?







Mold



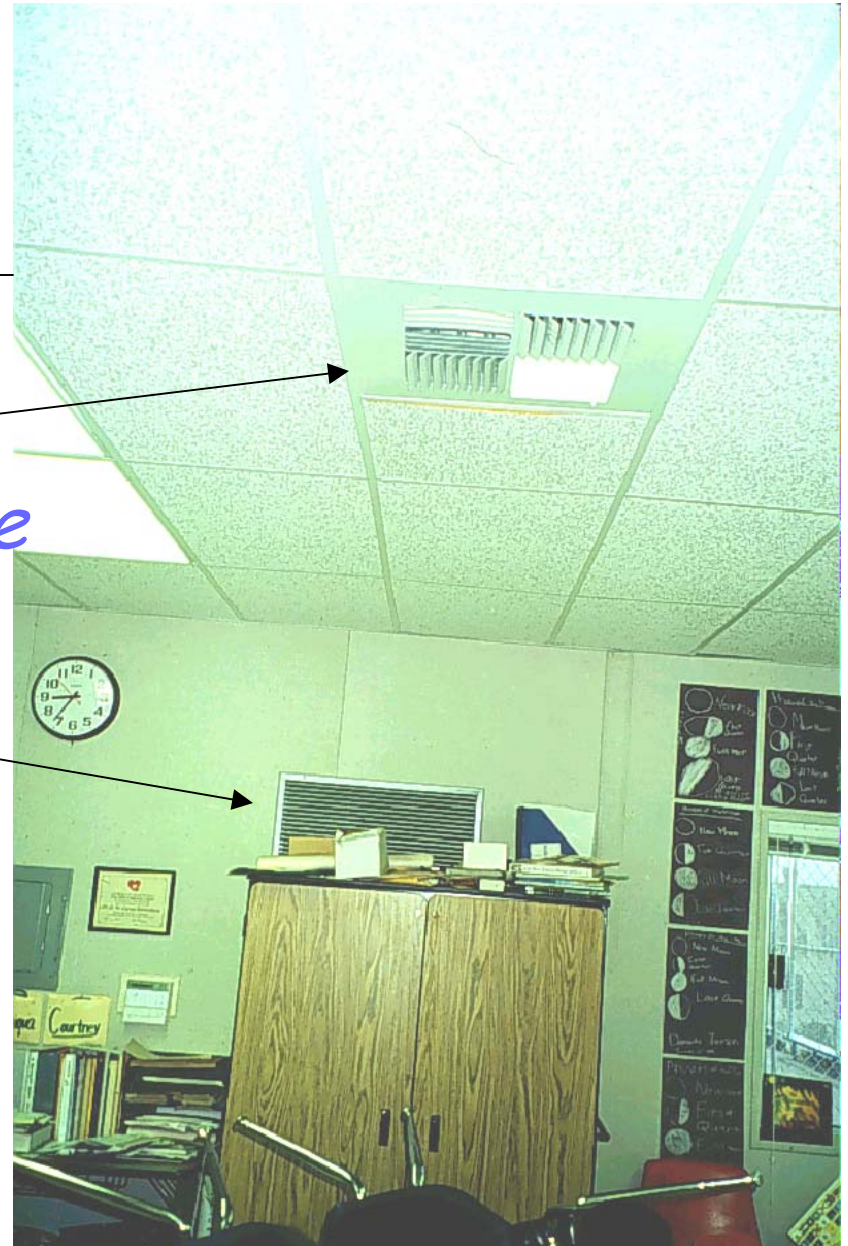
Algae !



Blocked Return

For air to come out of here

It has to get in there





Ventilation Unit of Portable Classroom

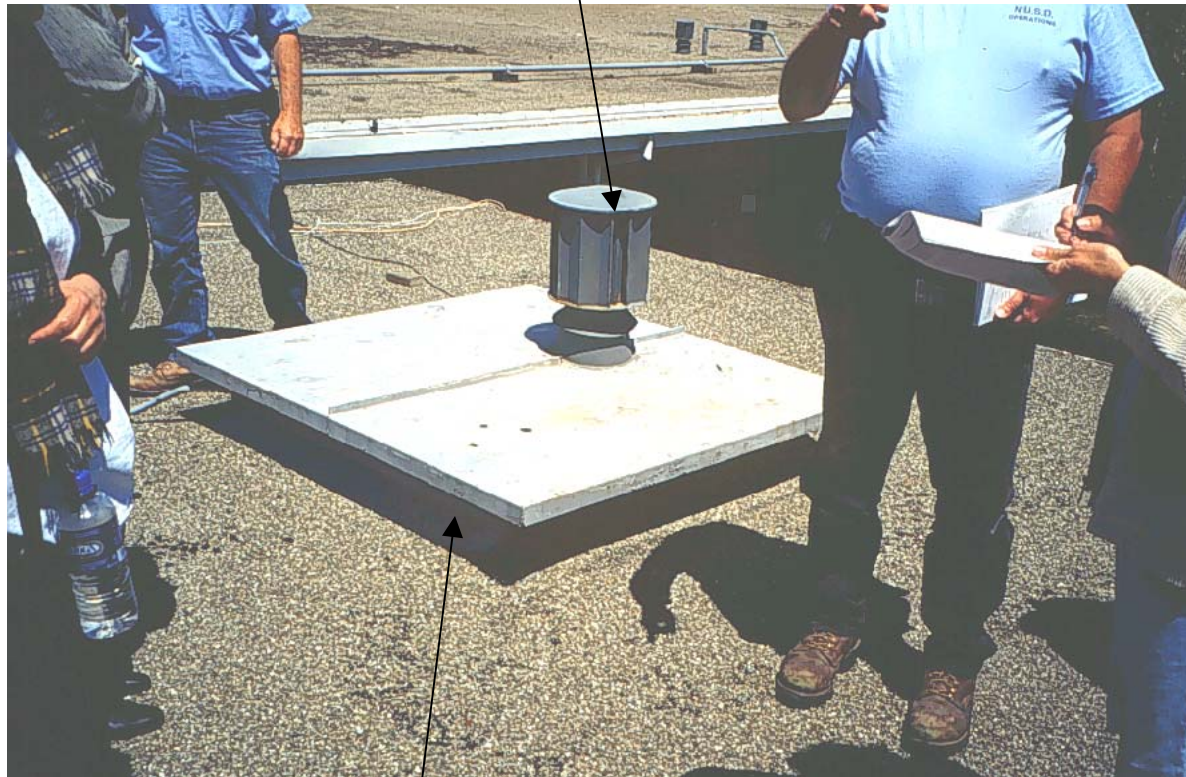


Outside air intake



Bathroom exhaust

Combustion exhaust



Outside air entry

Air Intake located by...



HVAC located in attic of school

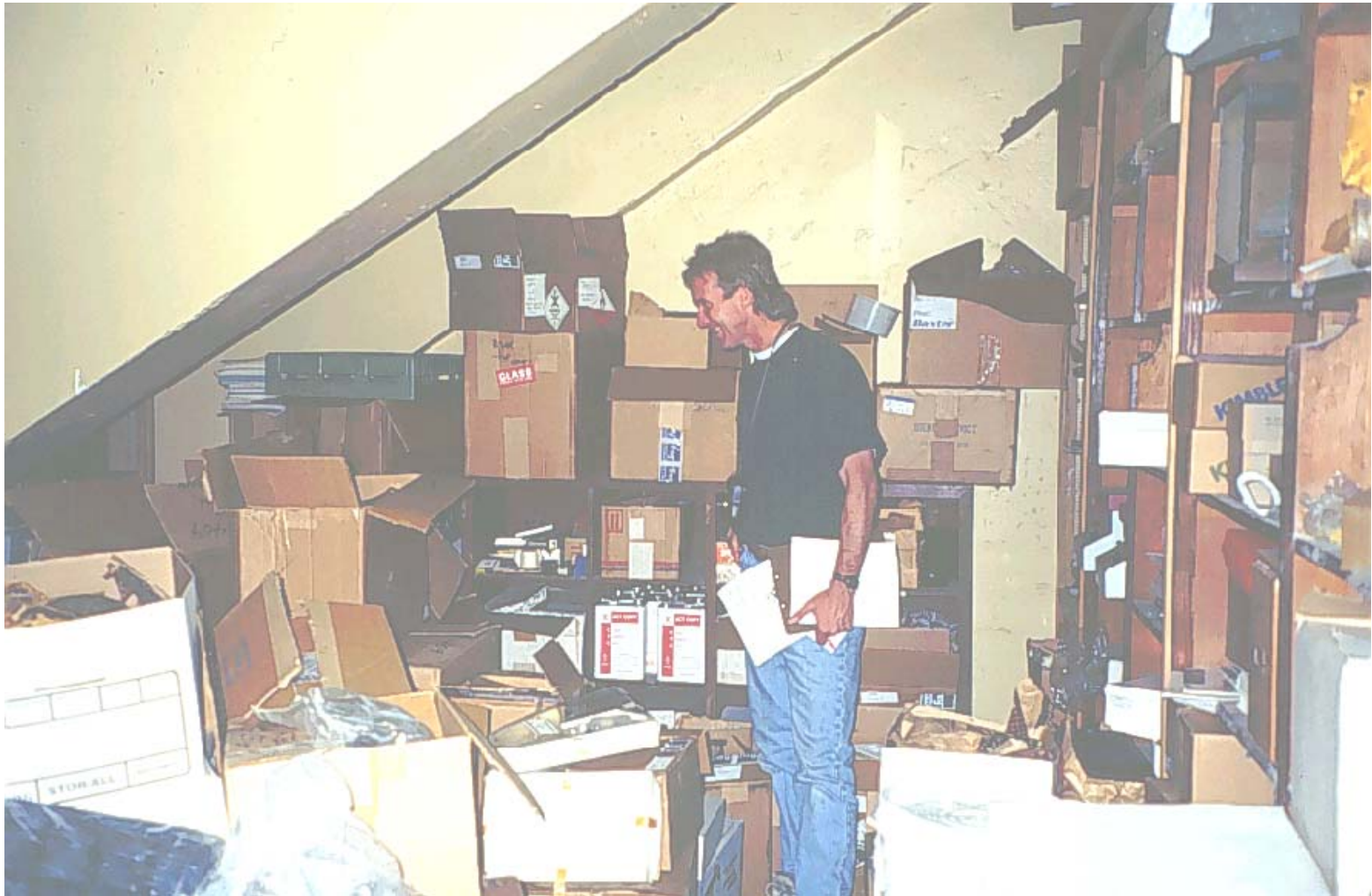




A hole in the wall



Storage area on other side of wall



So what can be solutions?

- *Education - "eye openers"*
 - *Everyone in your school has to understand the importance of good indoor air quality*
 - *Everyone has to understand that their typical activities can affect indoor air quality.*
- *Communication tools to build a team*
 - *Everyone has to understand the importance of communication!*

What is the *IAQ Tools for Schools* Kit?

- *A response to the root causes.*
- *A program for making all school-site staff educated advocates for good IAQ practices.*
- *A program for the entire school to learn to recognize/prevent IAQ problems in their building.*

IAQ Tools for Schools Kit Contents



Coordinator's Guide

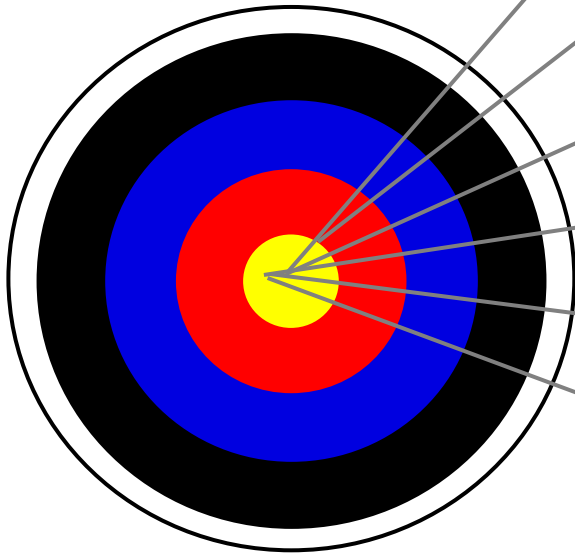
Checklists for the Entire Building

Instructional Videos

Problem Solving Wheel

Road Map

Asthma Guide



IAQ Tools for Schools Program

- *Voluntary EPA program used in over 10,000 schools nationwide*
- *EPA provides training, awards, technical assistance, publications*
- *Many EPA partners working to implement program*

IAQ Tools for Schools Program

Original Kit Co-Sponsors



NATIONAL PARENT TEACHER ASSOCIATION



NATIONAL EDUCATION ASSOCIATION



**COUNCIL FOR AMERICAN PRIVATE
EDUCATION**



**ASSOCIATION OF SCHOOL BUSINESS
OFFICIALS**



AMERICAN FEDERATION OF TEACHERS



AMERICAN LUNG ASSOCIATION

IAQ Tools for Schools

Program: Our Partners

- American Association of School Administrators (AASA)
- American Federation of Teachers (AFT)
- Association of School Business Officials (ASBO)
- Council of Educational Facility Planners International (CEFPI)
- National Education Association (NEA)
- National Association of School Nurses (NASN)
- American Lung Association (ALA)
- Asthma & Allergy Network*Mothers of Asthmatics (AAN*MA)
- National Association of County Officials (NACo)
- National Environmental Health Association (NEHA)

- National Catholic Education Association (NCEA)
- National Parent Teacher Association (PTA)
- Council of Catholic Facility Managers (CCFM)
- National School Board Association (NSBA)
- And others....

IAQ Tools for Schools

Program: Outcomes

- *Awareness and educated advocacy*
- *Easy things are fixed*
- *Lines of communication are opened*

continued

IAQ Tools for Schools

Program: Outcomes

- *Community / staff relations improved*
- *Emergency response plan*
- *Established process for preventing and fixing IAQ problems*
- *Documented school-based plan for prioritizing your IAQ and building improvements*

IAQ Tools for Schools

Program: EPA's Goal

*IAQ Management Plan (IAQ TfS or other)
in EVERY school in the U.S.*

Why are we here?

*To make schools healthier and
more productive places for
teachers to teach and children
to learn!*